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### 2013 - Salinas Valley Hydrologic Subareas, 4th Quarter Water Conditions

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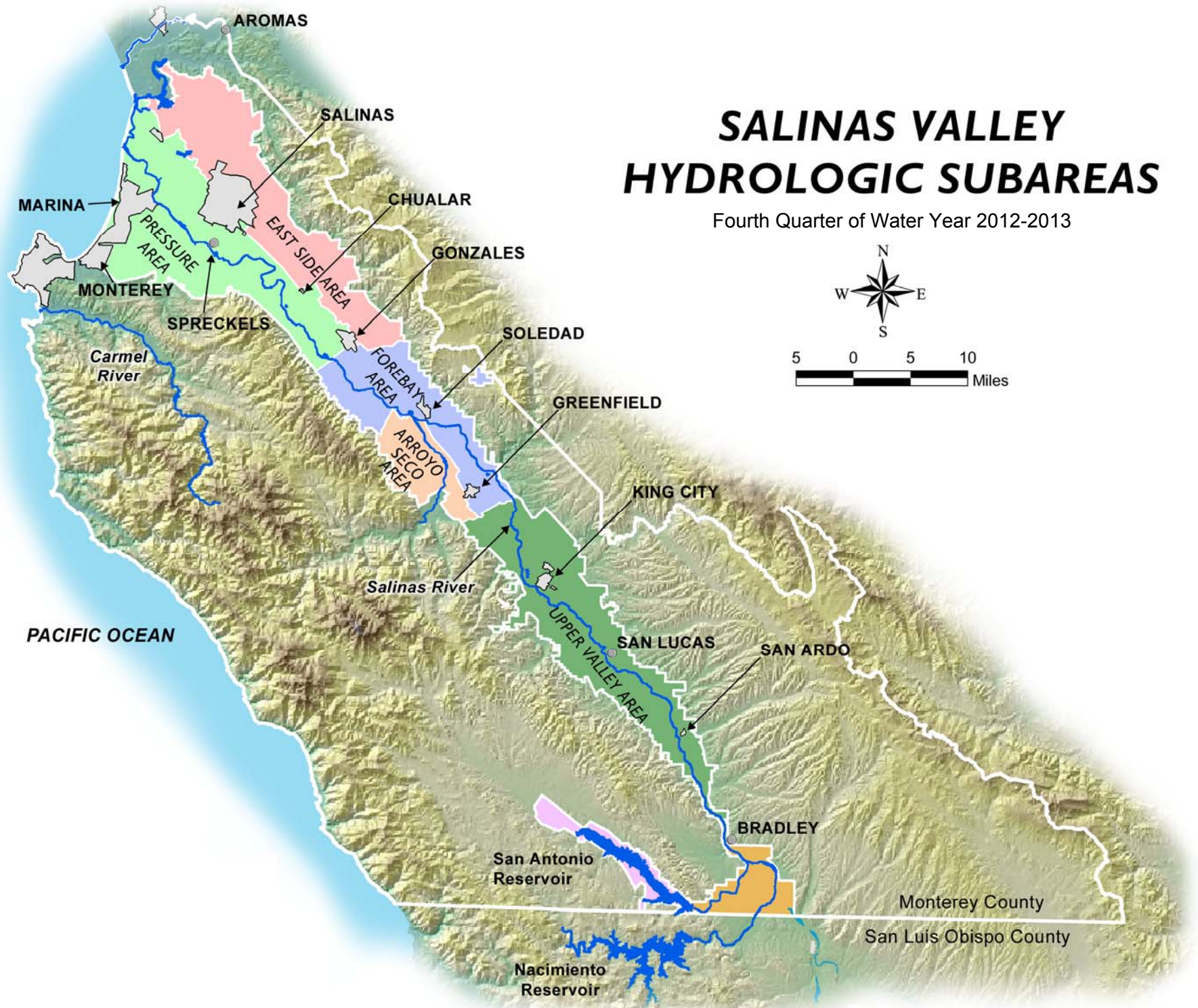
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# SALINAS VALLEY HYDROLOGIC SUBAREAS

Fourth Quarter of Water Year 2012-2013



**MONTEREY COUNTY WATER RESOURCES AGENCY  
BOARD OF DIRECTORS**

MEETING DATE:	October 28, 2013	AGENDA ITEM:	
AGENDA TITLE:	RECEIVE REPORT ON SALINAS VALLEY WATER CONDITIONS FOR THE FOURTH QUARTER OF WATER YEAR 2012-2013		
Consent ( X )                      Action (   )                      Information (   )			
SUBMITTED BY: PHONE:	Robert Johnson 755-4860	PREPARED BY: PHONE:	Peter Kwiek 755-4860
DEADLINE FOR BOARD ACTION:		October 28, 2013	

**RECOMMENDED BOARD ACTION:**

Receive report on Salinas Valley water conditions for the fourth quarter of Water Year 2012-2013.

**PRIOR RELEVANT BOARD ACTION:**

A report was last presented to the Board on July 22, 2013, covering the third quarter of Water Year 2012-2013.

**DISCUSSION/ANALYSIS:**

This report covers the fourth quarter of Water Year 2012-2013 (WY13), July through September, 2013. It provides a brief overview of water conditions in the Salinas Valley with discussion of precipitation, reservoir storage, and ground water level trends. Data for each of these components are included as graphs and tables in Attachments A through I.

**Precipitation** – The fourth quarter of WY13 brought less than normal rainfall to Salinas and King City. Cumulative totals for the quarter were 0.11 inches (55% of normal rainfall for the quarter) at the Salinas Airport, while no measurable rainfall was logged in King City, which, on average, receives a total of 0.2 inches during the months of July through September.

Attachment A contains graphs for both stations showing monthly and cumulative precipitation data for the current and a normal water year. Tables with precipitation values shown on the graphs and percent of normal precipitation are also presented in Attachment A.

Rainfall data for Salinas and King City should be considered preliminary until verified by National Weather Service data at a later date.

**Reservoirs** - The following table compares fourth quarter storage at Nacimiento and San Antonio reservoirs for the past two years. Storage in Nacimiento Reservoir is 31,937 acre-feet lower than in September 2012, while storage in San Antonio Reservoir is 159,130 acre-feet lower.

<b>Reservoir</b>	<b>September 30, 2013 (WY13) Storage in acre-feet</b>	<b>September 30, 2012 (WY12) Storage in acre-feet</b>	<b>Difference in acre-feet</b>
Nacimiento	110,613	142,550	-31,937
San Antonio	20,363	179,493	-159,130

Graphs for both reservoirs showing daily storage for the last five water years and average daily storage are included as Attachments B and C.

**Ground Water Levels** – More than 80 wells are measured monthly throughout the Salinas Valley to monitor seasonal ground water level fluctuations. Data from approximately 50 of these wells is used in the preparation of this report. The measurements are categorized by hydrologic subarea, averaged, and graphed to compare current water levels with selected past conditions. Graphs for individual subareas, showing the current year's water level conditions, last year's conditions (WY12), dry conditions (WY91), and near-normal conditions (WY85), are found in Attachments D through H. Attachment I is a summary of water level changes for all subareas.

Ground water level measurements indicate that water levels in all hydrologic subareas were recovering by the end of the fourth quarter of WY13. Over the past month, average ground water levels rose by five feet in the East Side Subarea, three feet in the Pressure 400-Foot Aquifer, two feet in the Pressure 180-Foot Aquifer and one foot in both the Forebay and Upper Valley Subareas.

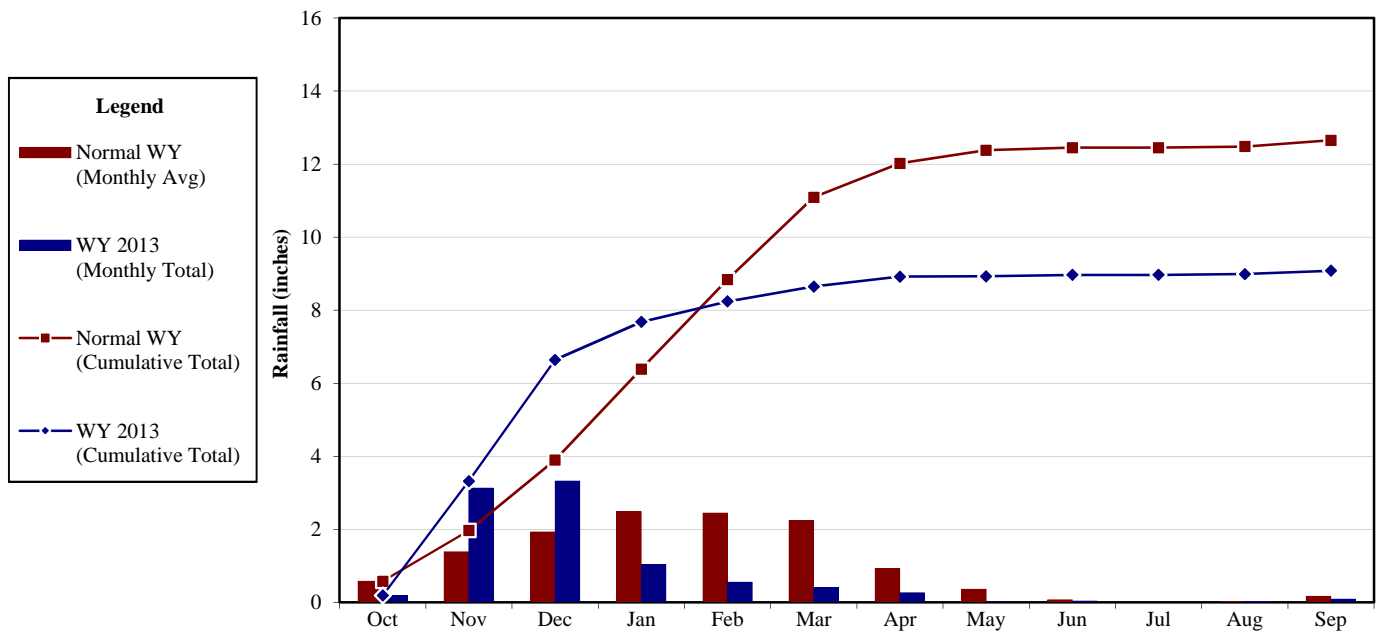
Compared to September 2012, average ground water levels in September 2013 were a foot lower in all subareas except for the Upper Valley Subarea, which saw no appreciable change.

When compared to WY85, which is considered to be a year of near normal ground water conditions, current water levels are thirteen feet lower in the East Side Subarea, and two feet lower in the Pressure 180-Foot Aquifer. The Forebay and Upper Valley Subareas water levels are two feet higher than WY85, and in the Pressure 400-Foot Aquifer, water levels are nine feet higher than in WY85.

Average ground water levels for the fourth quarter of WY13 remain above WY91 levels in all subareas.

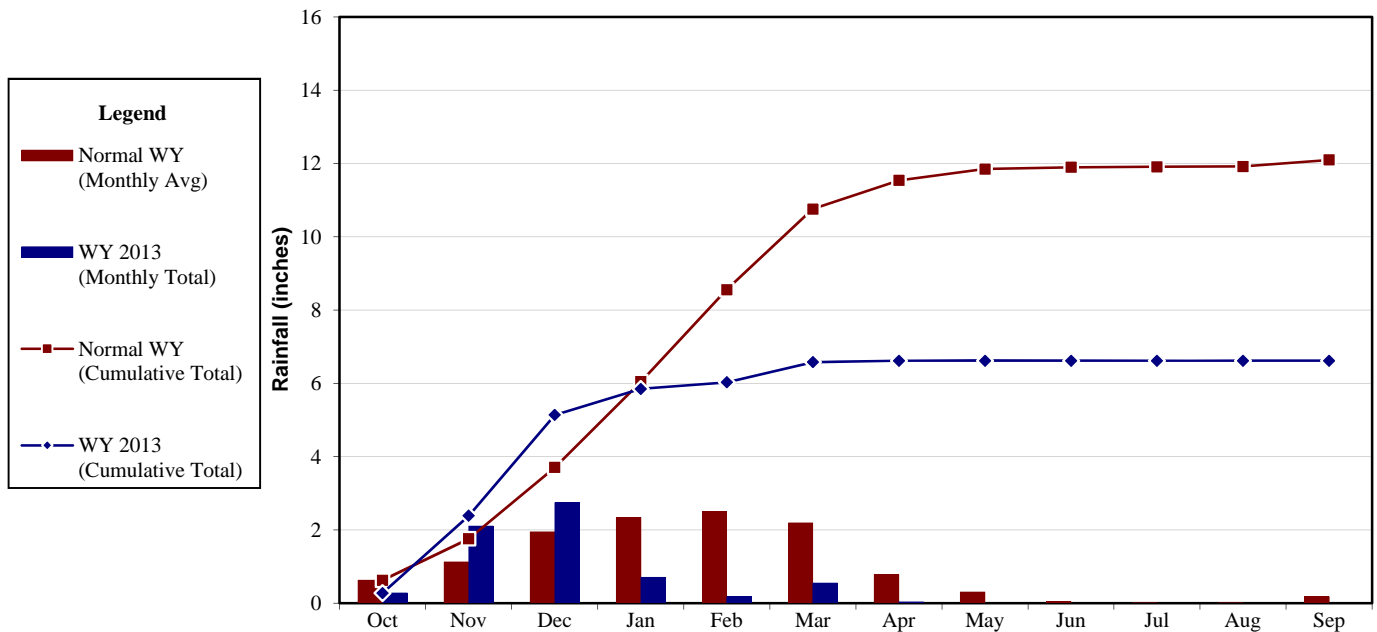
<b>FINANCIAL IMPACT:</b>	<b>YES (   )</b> <b>NO ( X )</b>
<b>FUNDING SOURCE:</b>	
<b>COMMITTEE REVIEW AND RECOMMENDATION:</b>	None
<b>ATTACHMENTS:</b>	1. Salinas Valley Hydrologic Subareas Map 2. Salinas and King City Precipitation Graphs, Attachment A 3. Nacimiento and San Antonio Reservoir Graphs, Attachments B and C 4. Salinas Valley Monthly Water Level Graphs for Each Subarea, Attachments D through H 5. Generalized Ground Water Trends, Attachment I.
<b>APPROVED:</b>	<div style="border-top: 1px solid black; display: flex; justify-content: space-between; margin-top: 10px;"> <span><b>General Manager</b></span> <span><b>Date</b></span> </div>

## SALINAS AIRPORT RAINFALL WATER YEAR 2013



Monthly Rainfall (WY 2013)	0.19	3.13	3.32	1.04	0.56	0.41	0.27	0.01	0.04	0.00	0.02	0.09
Monthly Rainfall (Normal WY*)	0.58	1.39	1.93	2.49	2.45	2.25	0.93	0.36	0.07	0.00	0.03	0.17
Percent of Normal for Month	33%	225%	172%	42%	23%	18%	29%	3%	57%	N/A	67%	53%
Cumulative Rainfall (WY 2013)	0.19	3.32	6.64	7.68	8.24	8.65	8.92	8.93	8.97	8.97	8.99	9.08
Cumulative Rainfall (Normal WY*)	0.58	1.97	3.90	6.39	8.84	11.09	12.02	12.38	12.45	12.45	12.48	12.65
Percent of Cumulative Normal	33%	169%	170%	120%	93%	78%	74%	72%	72%	72%	72%	72%

## KING CITY RAINFALL WATER YEAR 2013

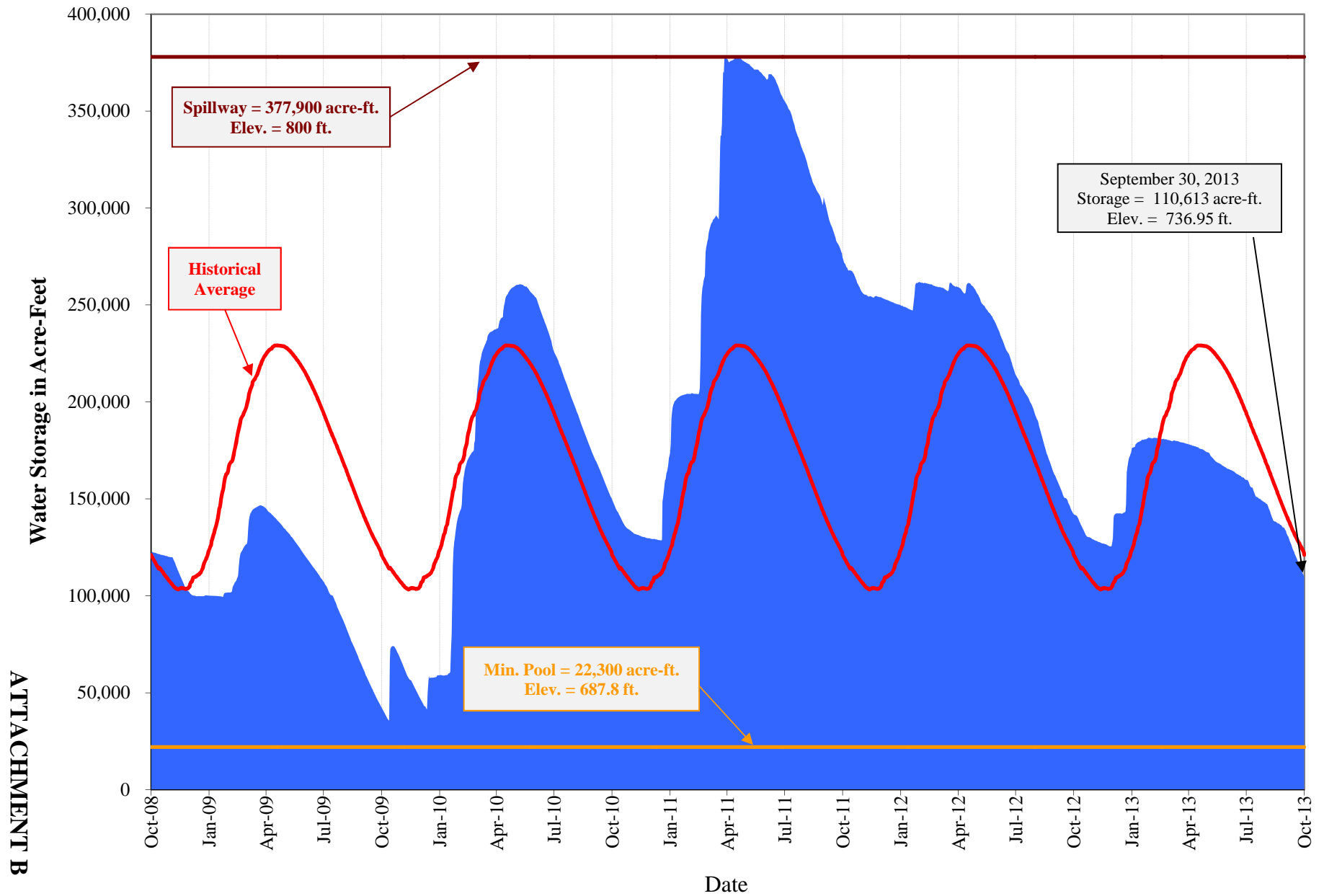


Monthly Rainfall (WY 2013)	0.28	2.11	2.75	0.71	0.18	0.55	0.04	0.00	0.00	0.00	0.00	0.00
Monthly Rainfall (Normal WY*)	0.63	1.13	1.95	2.34	2.51	2.20	0.78	0.31	0.05	0.01	0.01	0.18
Percent of Normal for Month	44%	187%	141%	30%	7%	25%	5%	0%	0%	0%	0%	0%
Cumulative Rainfall (WY 2013)	0.28	2.39	5.14	5.85	6.03	6.58	6.62	6.62	6.62	6.62	6.62	6.62
Cumulative Rainfall (Normal WY*)	0.63	1.76	3.71	6.05	8.56	10.76	11.54	11.85	11.90	11.91	11.92	12.10
Percent of Cumulative Normal	44%	136%	139%	97%	70%	61%	57%	56%	56%	56%	56%	55%

\*Average precipitation over the most recent 30-year period ending in a decade (1981-2010)

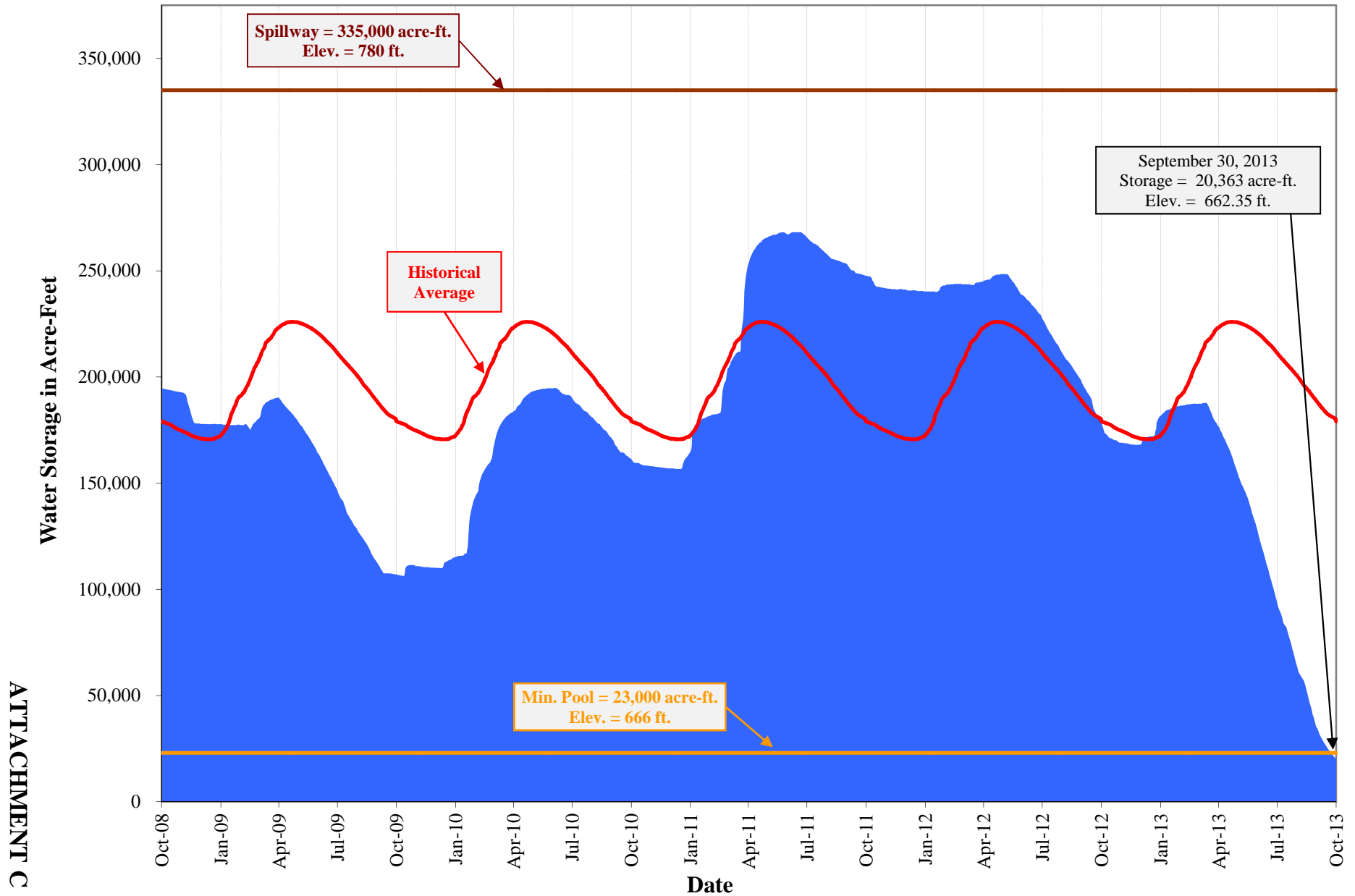
**ATTACHMENT A**

# NACIMIENTO RESERVOIR DAILY STORAGE





# SAN ANTONIO RESERVOIR DAILY STORAGE

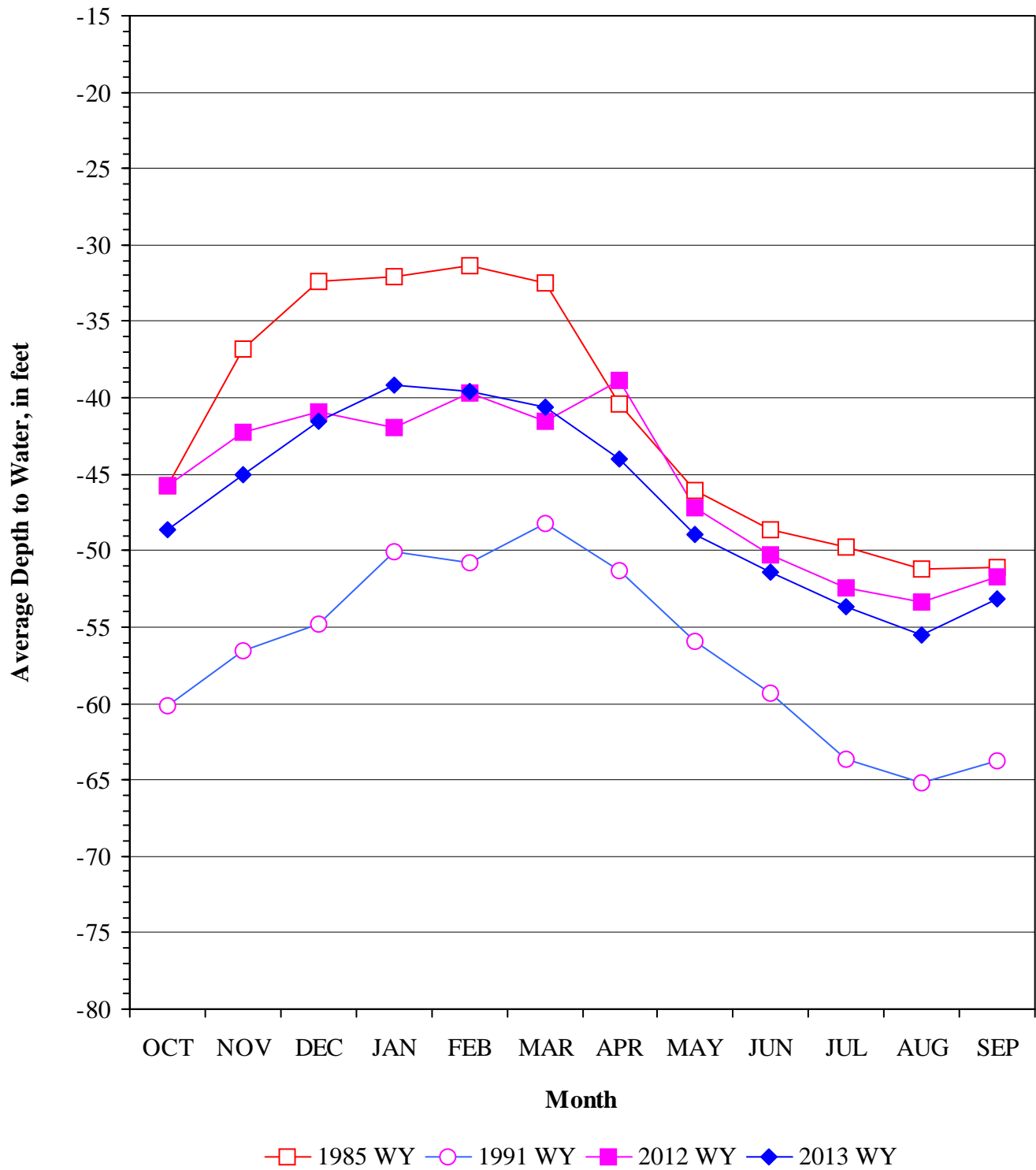




# HISTORIC GROUND WATER TRENDS

## PRESSURE 180-FOOT AQUIFER

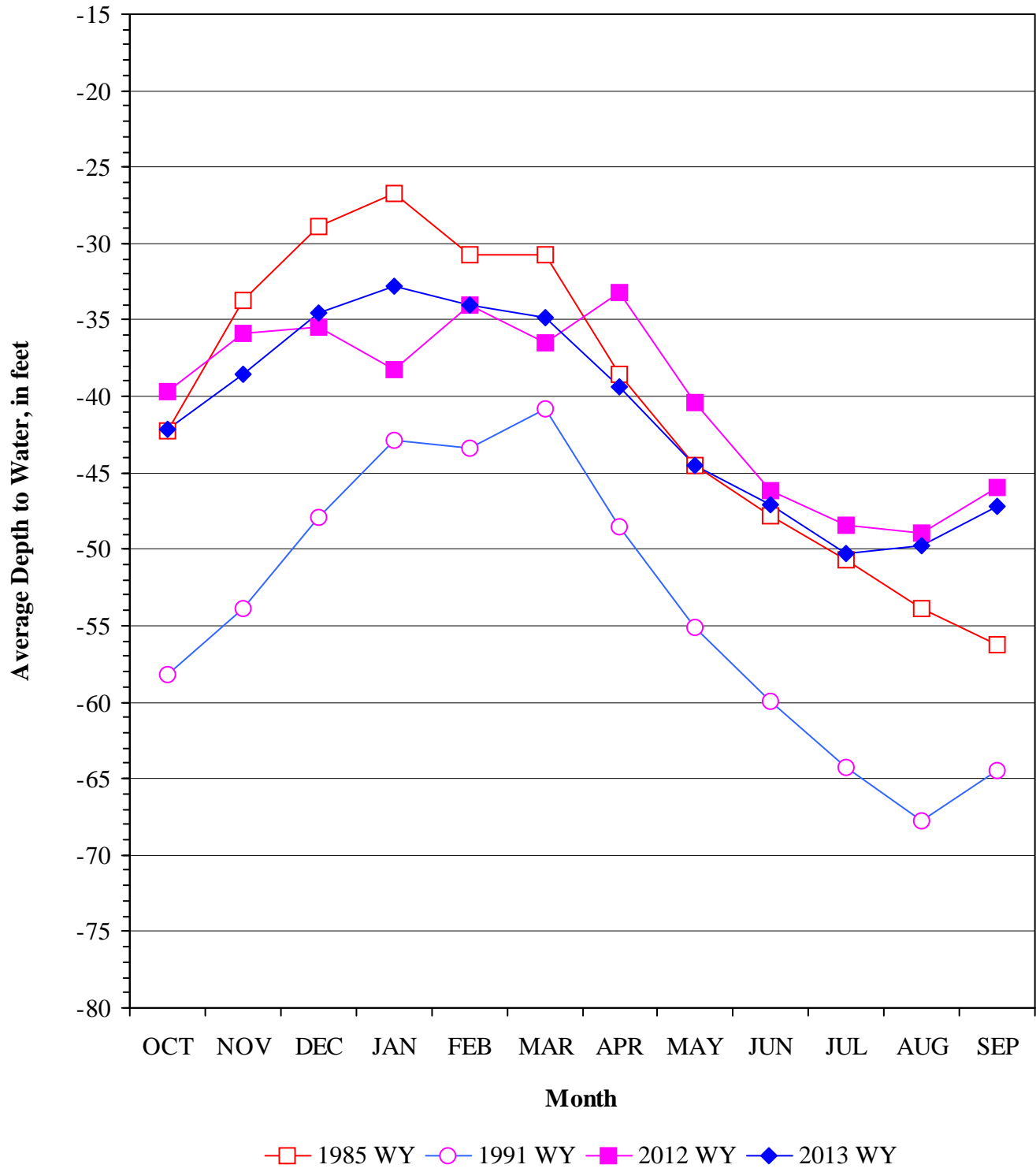
5 Wells



# HISTORIC GROUND WATER TRENDS

## PRESSURE 400-FOOT AQUIFER

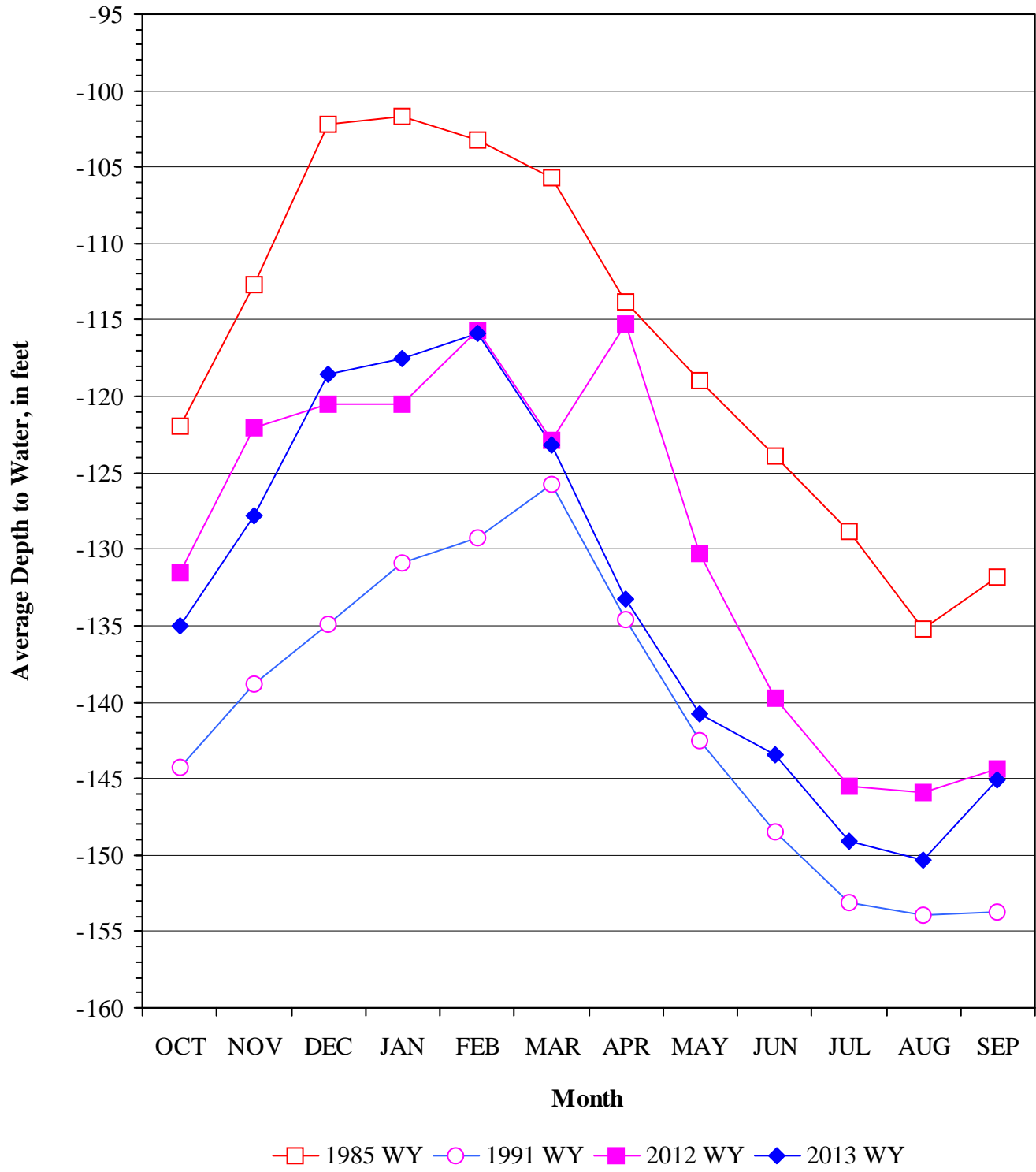
11 Wells



# HISTORIC GROUND WATER TRENDS

## EAST SIDE SUBAREA

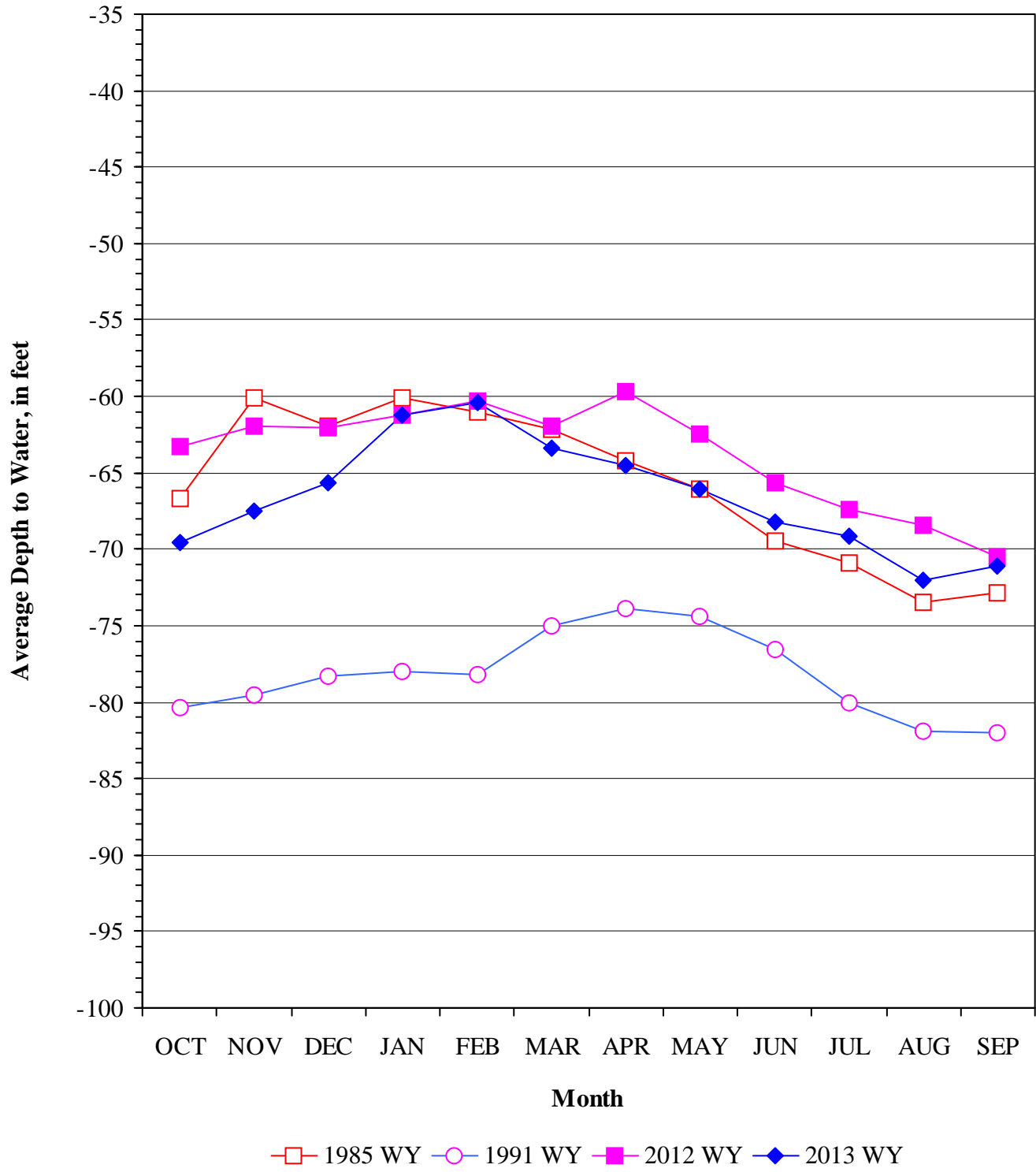
11 Wells



# HISTORIC GROUND WATER TRENDS

## FOREBAY SUBAREA

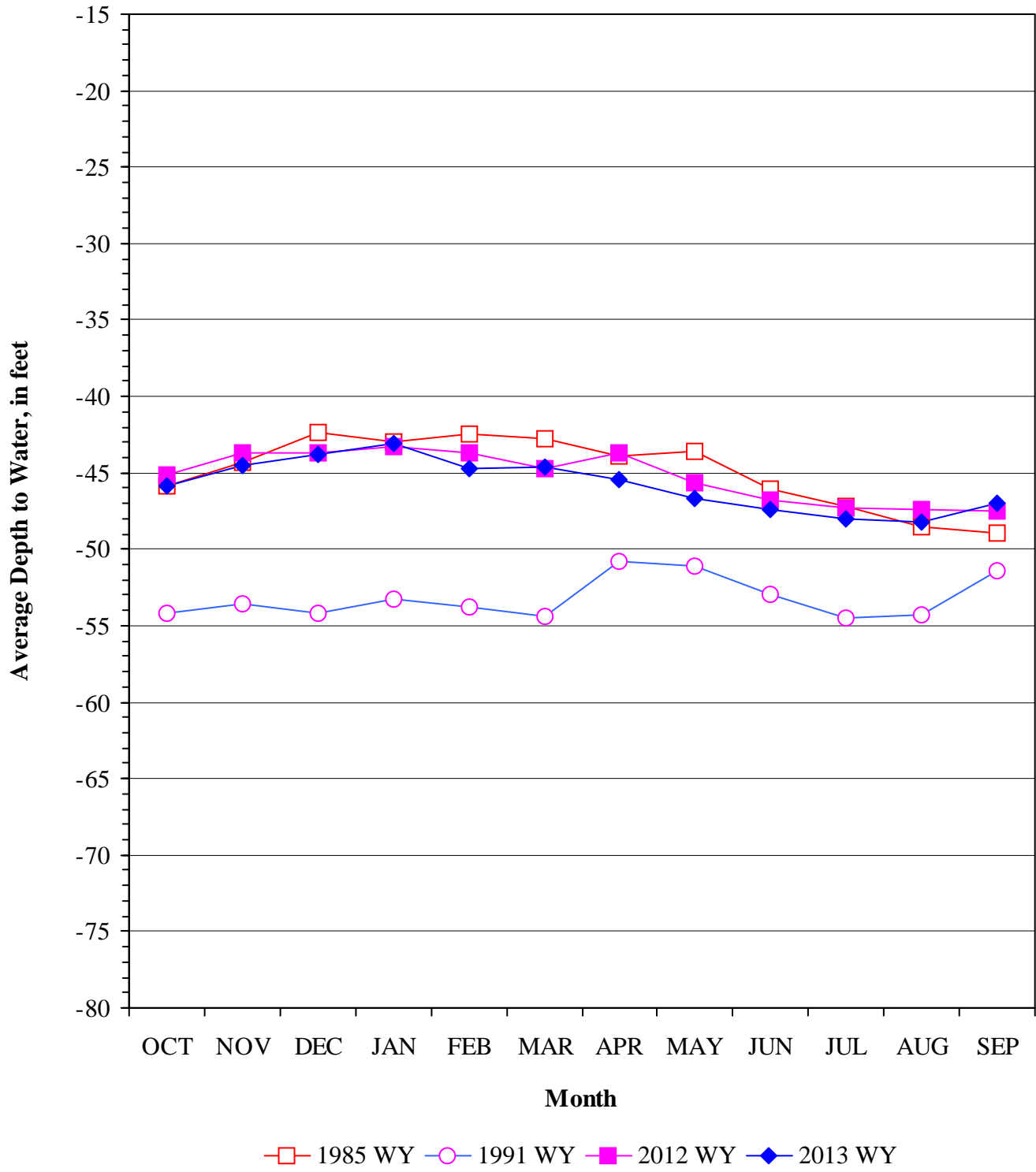
10 Wells



# HISTORIC GROUND WATER TRENDS

## UPPER VALLEY SUBAREA

9 Wells



# Generalized Ground Water Trends

## September 2013

<b>Area</b>	<b>September 2013 Depth to Water</b>	<b>1 Year Change</b>	<b>Change From WY 1985</b>	<b>1 Month Change</b>
<b>Pressure 180-Foot Aquifer</b>	<b>53'</b>	<b>down 1'</b>	<b>down 2'</b>	<b>up 2'</b>
<b>Pressure 400-Foot Aquifer</b>	<b>47'</b>	<b>down 1'</b>	<b>up 9'</b>	<b>up 3'</b>
<b>East Side Subarea</b>	<b>145'</b>	<b>down 1'</b>	<b>down 13'</b>	<b>up 5'</b>
<b>Forebay Subarea</b>	<b>71'</b>	<b>down 1'</b>	<b>up 2'</b>	<b>up 1'</b>
<b>Upper Valley Subarea</b>	<b>47'</b>	<b>no change</b>	<b>up 2'</b>	<b>up 1'</b>

September water levels, compared to last year, range from 1' lower to no change.

September water levels, compared to WY 1985, range from 13' lower to 9' higher.

September changes in water levels over the last month range from 1' higher to 5' higher.